

Waste Watchers keep CNE clean

This year the 26 members of the Waste Watcher's Squad were perhaps the most visible part of this Ministry's participation at the Canadian National Exhibition. Dressed in tidy green and white uniforms and equipped with special litter buggies bearing Environment Ontario's and CNE's logos, the students patrolled the grounds, in a relentless war against litter. Nicknamed the "Can Can Kids," the students also distributed Waste Watchers buttons to whoever helped to keep the grounds clean.

The Waste-Watchers Squad, however, represented only one front of the Province's war on waste. A new display on Resource Recovery in the Better Living Centre showed what Ontario does with the waste collected and how much material can be recycled to re-enter the production process or to produce energy. The display also featured a Who's Who of the

recycling industry.

The resource recovery model, a working, highly detailed scale model of the Ontario Centre for Resource Recovery in Downsview, explained the function of the plant from the time waste trucks deposit their load until the time the waste can be reused by industry.

In Ottawa, London

Environment Ontario offered fair-goers in Ottawa a chance to assess their environmental I.Q.'s in the Ministry's Environmental Arcade.

The 30 foot display at the Central Canada Exhibition featured eight exhibits and games of skills including the environmental assessment quiz, a display on the "good guys" of the insects world, garbage quiz and talking garbage cans.

Environment Ontario also took its arcade display to London's Western Fair, which ran from September 10 until September 19.



Two members of the Waste Watcher's Squad prepare for action. ►

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IRONMENT LEGACY

VOL. 6 NO. 3

OCTOBER/NOVEMBER 1977

North Bay adopts Ontario noise by-law

North Bay is the first Ontario community to put a new noise bylaw into effect under the Environmental Protection Act, Minister George A. Kerr announced recently.

"The bylaw is based on the model municipal noise bylaw prepared in 1975 by the Ministry to give municipalities additional powers to control unwanted sound," Mr. Kerr said. Another 30 municipalities are preparing bylaws based on this Environment Ontario model.

The new North Bay noise control bylaw allows the City Council to prohibit entirely certain types of disturbing noises, such as the use of ineffectively muffled vehicles and the operation of noisy construction equipment in a "Quiet Zone". The City Council may also prohibit by time and place a variety of noisy activities such as the use of fireworks, the discharge of firearms, the operation of car washes and the barking of dogs.

To introduce the new noise control bylaw, the Ministry of the Environment has held a series of acoustic technology courses during the past two years to train noise control officers. About 300 municipal and provincial employees have attended these certifying courses. Certificates must be renewed every three years. While attending the first course, each candidate must undergo a hearing test.

J.W.Giles appointed ADM

K. H. Sharpe, Deputy Minister, Ministry of the Environment, has announced the appointment of J. Walter Giles to the position of Assistant Deputy Minister responsible for the Environmental Assessment and Planning Division of the Ministry. The appointment was effective June 1, 1977.

Mr. Giles comes to the Ministry of the Environment staff from the Ministry of Natural Resources, where he was Assistant Deputy Minister, Lands and Waters.

A Registered Professional Forester, he was born in Peterborough and earned his B.Sc.F. at the University of Toronto and M.F. at the University of Michigan. He started his Ontario Civil Service career with



the Ontario Department of Lands and Forests in 1949 and with the establishment of the Ministry of Natural Resources in 1972, he became Assistant Deputy Minister, Lands and Waters.

Kerr: keys to future are water, planning

About 10 years ago, pollution meant black smoke and raw sewage. Today it is measured in parts per billion, George Kerr, Minister of Environment Ontario told members of the Muskoka Institute for the Future recently in Bracebridge, Ont.

In his address, the Minister referred to the United Nations Habitat Conference held earlier in Argentina.

"The provision of pure water is looked upon as the very key to the development of third-world countries and the Canadian government has made a multi-million dollar commitment for water assistance programs in third world countries.

"Having as we do, more than one-quarter of the world's supply of fresh water, most Canadians take this abundant and vital resource for granted," Mr. Kerr noted.

"Our newest weapon in environmental protection is the Environmental Assessment Act, the only piece of legislation in Canada which is aimed at the prevention of environmental damage through consideration of major undertakings at the planning stage.

"Ontario's new approach to the environmental assessment will include comprehensive

planning and alternatives will be developed and considered in the light of their environmental, social, economic and cultural effects on the total community.

Mr. Kerr outlined some of the future projects of Environment Ontario. "Wood waste will be the focal point of a detailed engineering study for an energy facility in Hearst, north of Timmins, which would convert wood waste and municipal refuse to valuable steam power and electricity.

"An earlier feasibility study indicated that 180 thousand tons of wood waste produced each year by the six area sawmills and plywood plants could provide enough electricity for all the town's 5,000 residents with an equivalent surplus capacity available to Ontario Hydro.

"Toronto garbage will be used as a fuel for cement production in a 240 thousand dollar demonstration undertaken by Environment Ontario and Canada Lafarge at the company's plant in southwestern

experiment in re recovery process which we expect e-derived fuel as energy resource municipal garb-

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Good water helps Alvinston grow

Dry wells, iron contaminated water, and grey clothes will no longer be problems for the village of Alvinston in southwestern Ontario, since the Alvinston Water Treatment Plant was officially opened in July by Fred Durham, Assistant Director of the Southwestern Region, Environment Ontario.

Since the water treatment plant has been installed, 13 new homes have been built in Alvinston and 10 more will be built shortly. As Town Clerk, Betty Walker, said, "I always knew the town would grow when we got water."

About 50 per cent of Alvinston's population (700 people) are connected to the new plant. When wells run dry, the town council hopes the entire village will join the system. The initial price is \$14 a month, or 50¢ a day per household.

The plant consists of a water intake, a standpipe section, a water treatment section and a distribution system. The treatment facilities are located on a three acre site on the west bank of the Sydenham River. Water is supplied to the village from the Sydenham River by a 200 feet eight inch diameter intake pipe.

In the past, Alvinston's water had a high iron content and pipes and taps corroded quickly. During dry spells water had to be rationed or borrowed from someone who had a good well. With the new system these problems have vanished. In fact, the water is now so soft that people are saving money on soap.

The plant was designed by Monteith-Ingram Engineers Ltd. Contractor was Aztec Contractors Ltd. of London, M. M. Dillon were consulting engineers. Construction began on September 30, 1975 and the plant was completed November 1, 1976.



Fred Durham (far left), Environment Ontario's southwestern regional Assistant Director proposes a toast with Alvinston's new clean water to the village's Water Treatment Plant. Responding to the toast are (from left to right) Larry Condon, M.P. for the area, Honourable Lorne C. Henderson M.P.P. for Lambton, Tom Steadman, Warden of Lambton County, Alvinston Reeve Douglas Coleman, and the ministry's plant operator in Alvinston, Tom Wright.

APCA conference "a spectacular success"

Environment Ontario played a major role in helping to organize and host the 70th annual conference of the Air Pollution Control Association held at the Sheraton Centre Hotel, Toronto. The meeting enjoyed a record attendance of more than 4,500 delegates from Canada, the United States and abroad.

Founded in 1907 with international headquarters in Pittsburgh, Pa., APCA is a technical society devoted to furthering the art and science of air pollution control. Its members include air pollution control authorities in all sectors of industry, science, government, education, research and consultant organizations in more than 40 countries.

During the week-long June conference some 300 scientific papers were presented at 60 sessions culminating in a conference which *Water and Pollution Control* magazine summed up as a "spectacular success" and "a triumph for the organizers".

Among the 100 persons from the Ontario Ministry of the Environment taking an active part were W. Brad Drowley, who served as general conference chairman and is a past president of the Association; Don Ogner, Central Region, Chairman of the Host & Information Com-

mittee; R. J. Frewin and Anson Raymond, Public Relations & Publicity Co-chairmen; Ron Morse, Personnel, assistant chairman of Facilities; and Jim Gallagher, Central Region, assistant chairman of the Host Committee.

Environment Ontario's new mobile air monitoring unit, billed as one of the most sophis-

ticated mobile laboratories in North America to collect and analyse air quality samples, was displayed on City Hall Square by Dr. Gene Singer. The Phytotoxicology Section of the Air Resources Branch presented a new documentary exhibit, and Wes Williamson arranged a technical tour of the Ministry's new Resource Recovery Centre

in Downsview, for APCA delegates.

The Toronto conference was the second to be sponsored in Canada by APCA. For next year the site chosen is Houston, Texas. APCA will return to Canada in 1980 and hold the meeting in Montreal.

APCA/PCAO Joint Conference

During the conference, the Ontario Section of APCA held its annual meeting and elected Don Ogner as president. The Ontario Section together with the Pollution Control Association of Ontario will sponsor their first joint annual meeting on April 30-May 2, 1978 at the Prince Hotel, Toronto. For further information contact Mr. Ogner at Central Region, Environment Ontario, telephone (416) 424-3000.

Dr. John R. Brown

The University of Toronto lost one of its most active environmentalists with the death of Dr. John R. Brown, a Professor in the Department of Environmental Health and an Associate of the Institute for Environmental Studies.

Dr. Brown believed strongly in the social responsibilities of scientists for environmental issues.



APCA President David Standley (left), Commissioner, Dept. of Environmental Quality, Commonwealth of Massachusetts, presents a plaque of appreciation for outstanding services to Dr. J. R. Ingram, Director (Air), Technology Development Branch, Environmental Protection Service, Environment Canada, for his role as chairman of the technical program for APCA's 70th annual conference.



Map shows dam site options for proposed Inco Metals hydro-electric power project.

Inco Hydro project under assessment

Over 180 citizens attended public meetings in Espanola, Ontario and Carleton Place in July to comment on a proposed hydro-electric generating project being studied by Inco Metals Company for the Spanish River above Lake Agnew.

The public information sessions and a series of smaller meetings with various groups including municipal councils, lodge owners, cottagers associations and environmentalists, are part of a \$1.2 million feasibility study and environmental assessment of the proposed power project.

Environment Minister George Kerr announced in mid-June that the proposal was being designated for full assessment under Ontario's Environmental Assessment Act.

"Inco Metals is the first private company to request assessment under the Act for a project

of this scope," Mr. Kerr said. He complimented the company for its foresight in requesting assessment at this early stage in the study. "The company is in a good position to plan for maximum benefits both for the company and for residents of the area with a minimum of environmental disruption."

Inco Metals spokesman Ray Gilbert said a number of public concerns have been identified as a result of the meetings including the potential effect on white water canoeing on the Spanish River, the fate of wild life and timber on land which would be flooded in any development, and potential effects on fish spawning areas. Other citizens have asked about possible increased access to the river and the possibility of expanded recreational uses.

Mr. Gilbert said preliminary studies indicate that one of the five possible dam sites on the river has the most potential for development. He added that the company's consultants will be concentrating more on this site as engineering, biological and water quality studies continue this summer.

Inco Metals now operates four generating plants and 11 control dams on the Spanish River watershed. The expansion proposal now under study could increase generating capacity from the current 357 million kilowatt hours to as much as 735 million kilowatt hours.

Company spokesmen say this would enable Inco Metals to produce as much as 35 per cent of its own power needs and free Ontario Hydro's production capacity in the area to meet other demands.

Ontario equipment sells in Europe

Seven Ontario manufacturers of environmental control equipment received \$43,000 in initial orders and projected first year sales of \$1.5 million at the Pro Aqua Pro Vita show held recently in Basel, Switzerland.

The companies exhibited their products at an Ontario Government stand organized by the Ontario Ministry of Industry and Tourism.

More action is needed on Great Lakes

Canadians review Great Lakes Water Quality agreement

By Linda C. Kirby

"Since 1972 Canada and the United States have waged a multi-billion dollar war on pollution of the Great Lakes", Ontario Environment Minister George A. Kerr noted at the opening of a public meeting recently held in Toronto to review the Great Lakes Water Quality Agreement. This agreement must now be reviewed to ensure the completion of municipal and industrial abatement projects and to deal with new problems of toxic chemicals, with the long range transport of air pollutants and land planning to respect the water quality objectives of the Agreement, Minister Kerr added.

The Canada-U.S. Great Lakes Water Quality Agreement, signed in 1972, is currently under review as both countries prepare to renegotiate the Agreement this fall.

The Great Lakes Water Quality public hearings held in July in Toronto and Thunder Bay demonstrated widespread public awareness of pollution issues facing the Great Lakes community. Mr. Kerr and federal Minister of Fisheries and Environment, Romeo LeBlanc, presided jointly at the meeting.

For many, the public meetings provided an opportunity to voice their concerns directly to the federal and provincial environment ministers. Those who did not know extensively about the Agreement, came to listen and contributed by written briefs afterwards.

The Agreement basically provides a schedule of specific water quality objectives. The schedule calls for a billion dollar commitment from the United States and Canada over ten years.

"I have set some targets which I trust will be achieved in the formal negotiations with our American neighbors this fall," Mr. Kerr told the audience. One of these targets will deal with the major U.S. municipal projects,

which Mr. Kerr wants to see "accelerated and completed."

While the ministers believed that Agreement has its weaknesses, considerable improvements in water quality have been attained. Mr. LeBlanc noted that "99% of the Canadian population serviced by a sewer system, receive adequate treatment of their wastes." However, with the increased study of the lakes, "we have become aware of new and startling pollution problems. No short term solutions are in sight."

\$4.5 billion spent

Nearly \$4.5 billion has already been either spent or committed in the U.S., while Canada, through a cost sharing agreement with Ontario, has directed \$750 million toward completing its share of the wastewater program, Mr. Kerr said.

Mr. Kerr also noted Ontario has installed phosphorus-removal facilities in the Lake Erie and Lake Ontario drainage systems, with local improvements already evident along the north shore of Lake Erie, generally thought of as the most polluted of the Great Lakes.

Mr. Kerr also said the province has recently issued a number of directives to pulp and paper manufacturers along Lake Superior and elsewhere in Ontario, ordering that pollution abatement programs be completed by specified dates.

Some participants at the meetings were dubious about the progress made during the first five years. "We consider progress in the Great Lakes clean-up to be wildly mixed," said Michael Singleton of the Federation of Ontario Naturalists. He suggested that the decision-making action "has not been constant and that when it comes to the 'crunch' of taking decisive action, that dedication has been wanting on both sides of the border."

Alan Roy, Director of Environment Studies for the National Indian Brotherhood told the meeting that a Crown corporation should be established to dispose of PCBs. Mr. LeBlanc said that the government would assume responsibility for disposal of PCBs. He also said that the government will ban imports containing Mirex. "I favour the idea of a government organization to dispose of wastes in a professional scientific way under strict supervision."

Mr. Kerr supported this idea: "I can see the use of an abandoned army base or something," he said. Mr. Kerr went on to say that a plant owned by St. Lawrence Cement in Mississauga might become the permanent site for disposal of waste PCBs in Canada.

While some groups were critical of government efforts to reduce pollution, others criticized the actual regulations. The Soap and Detergent

Association of Canada, represented by Alan Brownridge, stated in a brief that no restrictions should be introduced to further regulate or eliminate the ability of the cleaning product industry to use phosphates. "The contribution of laundry detergent phosphorus at the present low levels, is now an extremely small part of the overall phosphorus loading, contributing less than one-half of 1% of the total Canadian phosphorus loading on Lake Erie and Lake Ontario."

Pollution Probe, however, found that, "A total ban of phosphorus detergents is the only real solution." Adele Hurley, speaking for Pollution Probe, complained that, "Canada continues to limp along in its phase-out of phosphorus detergents."

Several groups suggested a variety of improvements to the Agreement. Many felt a need for more public information. The Petroleum Association for Conservation of the Canadian Environment, stated: "The Water Quality Objectives Subcommittee should be expanded to include scientific, industrial and academic participation."

Meetings in Thunder Bay

Thunder Bay carried on the Toronto meeting's discussions the next day with a smaller, though enthusiastic audience of approximately sixty people. Briefs were addressed to George Kerr, Walter Giles, the new Assistant Deputy Minister, and a panel consisting of Derek Foulds, Dr. Robert Slater and William Stiegles.

Heavy criticism was levelled at some of the local pulp and paper mills from several environmental groups. "Industries that violate our environment should be heavily fined and owners and managers imprisoned," said Norm Richard, president of the Thunder Bay and District Labor Council. Ken McFarland, of Environment North, stated that Abitibi Paper's Thunder Bay mill exceeded the Ontario government standards for biological oxygen demand (BOD) within "shout-

ing distance" of the water intake for Port Arthur. He recommended a better co-ordination of the activities of the federal and provincial ministries.

Dwight Reid, speaking for American Can Co. in Marathon defended his company's position on pollution abatement. American Can has spent over \$3.6 million on environment projects between 1972 and 1976, Mr. Reid said. He stated that if the company had known of the heavy expenses required for pollution control, it would have shut down the plant years ago. The company will close its mercury cell plant before the end of this year because of impending legislation with tighter controls.

In all, six briefs were presented to the gathering and several citizens spoke on their own behalf. Roger Andrew said the limits the International Joint Commission has recommended on discharges of phosphorus are unreasonably low, expensive to implement and, in the long run, won't do any good.

When Dr. Robert Slater, head of the Ontario Region, federal Environmental Protection Service, informed Mr. Andrew the proposed limit was already law on the lower Great Lakes, Mr. Andrew said the phosphorus removed from wastes has to be dumped somewhere on the land. Eventually, he said, it will be diluted and transported by water seeping through the ground back into the Great Lakes.

All briefs will be forwarded to the appropriate authorities in Canada. They will be examined and considered during the negotiations for the renewal of the Canada-U.S. Great Lakes Water Quality Agreement.

"People are concerned," commented Mr. Kerr after the conference. "They want to see something done to protect our environment, and more than ever, they are becoming militant and forcing the federal and provincial governments to acknowledge the problems formally and do something concrete about it."

CALENDAR OF EVENTS

October 2-7 - Water Pollution Control Federation, annual convention, Philadelphia Civic Centre, Philadelphia. (Executive Secretary, Robert A. Canham, 2626 Pennsylvania Ave., N.W., Washington, D.C. 20037)

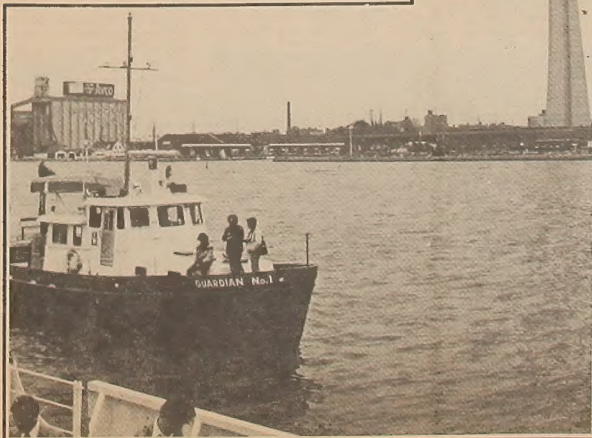
October 16-19 - Acro-Association of Counties & Regions of Ontario, 18th annual conference, Sheridan Brock Hotel, Niagara Falls, Ontario. (Executive Director, Ms. Caroline Ion, 356 Bay St., Orillia, Ontario)

October 25-27 - 2nd. American Meteorological Society Conference on hydrometeorology, Toronto, Ontario. (301-427-7640)

October 26 - Energy Conservation in Treatment Plants, Canada Centre for Inland Waters, Burlington, Ontario. Details from Art Varcoe (416) 277-1850.

November 1-3 - 1977 Environment Improvement Conference, Technical Section, Canadian Pulp and Paper Association, Hotel Beauséjour, Moncton, New Brunswick.

April 30-May 2, 1978 - The Ontario Section of APCA and Pollution Control Association of Ontario, first joint meeting, Prince Hotel, Toronto. (Don Ogner, Environment Ontario, (416) 424-3000)



Environment Ontario's Guardian No. 1, the vessel employed by the Ministry to monitor water quality on the Great Lakes, was open to visitors in Toronto during Great Lakes Water Quality Week.

Common garbage landfill site shared by six municipalities

Six municipalities in the Pembroke area are disposing of their garbage at a common sanitary landfill site.

Ken Gullins, Environmental Officer for the southeastern region said Pembroke was the first member of the group to realize it had a garbage disposal site problem. The ministry then found that other municipalities were in a similar situation and showed them the advantages of sharing a common site.

"The ministry co-ordinated the meetings called to discuss the waste disposal problem and to work out a common solution," he said. "Some municipalities wanted to continue on their own but their systems would not have been up to contemporary environmental standards."

The 255 acre sanitary area landfill site lies on the southern edge of the township of Alice and Fraser, about 10 miles from Pembroke. The six municipalities involved are the City of Pembroke, the Township of Stafford, the Township of Petawawa, the Village of Petawawa and the Canadian Forces Base at Petawawa. The total cost of the project, including acreage and engineering consultant costs, was \$59,640. The project will serve approximately 35,000 people.

An earth berm shields the operation from view from the road, but the site even if exposed, would not be an eyesore. It resembles the gravel pit it originally was. At the pit, the

garbage is compacted and covered each day with abundantly available earth. The site will be operated in three stages for about 30 years.

As part of a regional environmental protection program, the ministry monitors the water quality in the vicinity.

"We test the on-site wells regularly to detect groundwater contamination from leachate from the buried garbage before it gets into domestic wells," Mr. Gullins said. "Samples are also taken from wells off the site as an extra precaution."

The co-operation shown by these six municipalities is a first for Ontario and a direction the Ministry of the Environment hopes more municipalities will follow.



At the new Pembroke site the garbage is compacted and covered daily to limit infestation by rats and other pests.

PLUARG: It's Time for Action!

By Linda C. Kirby

The Great Lakes are being killed by studies and not just by pollution. This was the popular belief of many concerned citizens who attended PLUARG public meetings held across Ontario to assess the pollution problems from land use activities.

As part of the Great Lakes Water Quality Agreement between Canada and the United States the Pollution from Land Use Activities Reference Group (PLUARG) was formed in 1973 to study pollution in the Great Lakes System caused from agriculture, forestry and other land use activities.

"We are going to the people now," explained Sally Leppard, Canadian Public Participation Coordinator. "We organized 16 meetings across Ontario to find out specific problems, and the meetings have been extremely valuable. We have been able to identify local concerns and associations who are enthusiastic to help."

The public meetings are part of a project organized by PLUARG to establish eight public consultation panels across Ontario consisting of 20 members each. The members will represent a diverse range of interests, "but will not include public servants," reported Ms. Leppard.

Public participation in the meetings ranged from 20 or 30 people to 150 people in Kingston.

Many communities not situated directly on the Great Lakes are also involved. Citizens of Barrie, on Lake Simcoe, felt that adequate research had been done and it was now time to bring about some decisions. "We need laws with teeth," said Jack Webb, president of Big Bay Point District Association Inc. "There has to be a body over and above the township to provide strict enforcement of environmental laws," he added. It was suggested that PLUARG recommend distinct zoning bylaws to the federal and provincial governments to control industrial development along the lakeshore.



J. A. Moore (left), of the Federation of Agriculture, discusses a point brought up at the Peterborough PLUARG meeting with Garth Bangay of the Canadian Centre for Inland Waters, Burlington.

In Hamilton, Keith Bailey, also from the Federation of Agriculture, said that agriculture bore too great a responsibility for pollution. Hamilton residents named heavy metals, industrial effluents, salt and phosphorus as major problems in the area.

Six public representatives, selected by Ms. Leppard, choose consultation panels from across Ontario. The representatives span a field of agricultural, educational, municipal and recreational interests. There will also be a representative from the National Indian Brotherhood.

"I'm very optimistic," said Ms. Leppard. "All of PLUARG's findings from the last three years will be available to the panels and to the public." The panels will forward their recommendations to PLUARG. This report will then be passed onto the IJC who plans public hearings next autumn.

Donald Jeffs, member of PLUARG, and also Assistant Director of Water Resources, Ministry of the Environment, was present at the meeting. He admitted "it is time to get the

pollution problems wrapped up."

In Peterborough, local farmers worried about the amount of chemicals used in spraying crops. "It concerns me when I see seed promoted by seed companies, owned by chemical companies. These seeds respond to particular chemicals and thus encourage abundant use of these chemicals," said Ken Marisset, a local farmer, who also represents the Farmer's Union.

J. A. Moore from the Federation of Agriculture suggested that water containing nutrient enriched wastes from livestock and poultry should be stored in winter and spread on farmland during freeze-free months as a fertilizer aid.

Garth Bangay, from the Canada Centre for Inland Waters in Burlington, chaired the Peterborough meeting. He said that chemicals contribute very little seepage into waterways and there are not significant amounts of chemical residue. Mr. Bangay added that PLUARG has been monitoring chemicals in southern Ontario, down through the tributaries into the lakes.

Cottagers learn how to care for their lakes and rivers

If audience enthusiasm is any criterion Environment Ontario's four cottage workshops, entitled "Who Cares About Cottage Life", were an outstanding success.

"This was one of the most informative meetings I've ever attended," remarked one man. The chairman of one cottage association, firmly announced Next year, I'm going to bring out all of our members, even if I have to drive them myself."

These comments were typical of all the workshops, which were aimed at providing cottagers with information on how to protect and preserve their cottage environment.

The sessions dealt with such topics as the lake ecosystem, aquatic weeds, pesticides, the tent caterpillar, waste disposal, mercury and other contaminants, septic tanks, and the status of local lakes. They also explained the Ministry's cottage

pollution inspections and the voluntary self-help program for cottagers. Speakers at the three-hour meetings were local Ministry experts who emphasized their points with slides and hand-out materials.

Although all of the meetings were held on Saturdays — in Toronto, Bracebridge, Peterborough and Haliburton Village during the spring and early summer — the attendance was poor, with 30 people being the average number of participants.

The Ministry would like to run similar workshops next year in these and other locations throughout the province, if more public interest is shown. If you would like to attend such a workshop next year, or have any suggestions regarding this matter, please contact the Educational Resources Co-ordinator, Ontario Ministry of the Environment, 6th Floor, 135 St. Clair Ave. W. Toronto, Ontario, M4V 1P5.



Water samples are important — and easy to take.



A group of students led by Prof. R. G. Warnock of Ottawa University study the South Indian River to determine whether anything should be done, and if yes what can be done about the 20 to 25 ft spring floods.



Greg Norman samples with a device invented by him and a group of students from St. Lawrence College bottom growth in Collins Bay near Kingston to establish water quality in view of the planned development of the area.

Experience '77

A report on student environmental projects

By Brenda Turvey

More than 425 university and community college students will remember the past four months as the summer of Experience '77.

The students tackled 127 environmental projects for Environment Ontario as part of the Youth Secretariat's student employment program.

Members within the projects were expected to research and provide insights relating to all forms of pollution and methods of recovering and conserving resources.

The programs ranged from the study of farming practices in the Thames River Valley, and the design and construction of domestic solar water heaters at Algonquin College, to a University of Toronto project in which different species of blackfly were classified according to chromosomal make-up.

Students acquainted themselves with a variety of subjects. Laurentian University

students, for example, investigated stresses on native communities, four students at the University of Waterloo looked into our "Rights to Light" and developed a set of guidelines for landuse controls based on potential collector requirements for solar energy.

Many of the topics were timely, and the students findings were significant. Three students from the Department of Mechanical Engineering at the University of Toronto did a comparative study of diesel engines. Among other conclusions they recommended that 40 percent of all vehicles should be diesel powered, and the replacement of diesel fuel by other energy resources like coal should be investigated.

The students have plenty of memories about their summer. The Brock University study team will never forget the 70 miles of abandoned railway lines they hiked in search of potential recreational areas. Despite the many walking and writing calluses they acquired, they still feel that this was a successful summer. They recommend the development of sites and hope their suggestions will be followed up for the enjoyment of hikers or bikers of all ages.

Four students majoring in entomology at the University of Guelph, spent the summer collecting and identifying 400 species of southern Ontario insects.

Steve Marshall, a student supervisor at the Guelph University, sums up the experience of the summer of '77 best: "Sure they pay isn't the greatest, but this is more than just another summer job! We have all gained so much from the project and we've also been given the chance to develop our particular interests and skills."



Carleton University students, under supervision of Professor C. Kruus, dug through tons of literature to research background information on controversial polluting chemicals.

Experience '77

Ministry of the Environment

Queen Julianna and Impe now it's time to clean up



Rusted machinery is scattered about the properties and the boarded-up buildings, rotted with age, are creaking in the wind. Less than 50 years ago, mines with names like Queen Julianna and Imperial Crown were fully operational properties, extracting gold and silver from the Canadian Shield. Today, they are ghost towns.

Mine and mill operations may have shut down, but the discarded waste rock continues to be a source of chemical pollution. Waste material, called tailings, often contains hazardous substances such as arsenic, cyanide, lead, radium and mercury.

The Ministry of the Environment plans a physical cleanup of many abandoned mining properties that present a health hazard to local residents.

Geological engineering students from the Universities of Toronto and Waterloo are currently assessing the abandoned properties and making recommendations for stabilization of the areas. After the assessments, outside consultants will be contracted for stabilization work.

Stabilization procedures vary. In some cases, the acidity of tailings must be neutralized,

open pits filled in, mine shafts covered, uneven ground recontoured and appropriate areas must be fertilized and seeded. The average cost of revegetation now ranges between \$500 and \$5,000 per acre.

"Many of the several thousand abandoned mining properties in Ontario date back to the turn of the century before environmental controls were introduced," said John Hawley, head of the mining and metallurgy unit, pollution control branch, and supervisor of the project. "In areas where mines have been closed for 40 or 50 years, it is sometimes difficult to locate the property records or the property owner. Students may have to search through mining records that date back 100 years," he explained.

The project is expected to initially result in a detailed report that will, for the first time, document the nature, extent and seriousness of the environmental problems resulting from abandoned mining operations in Ontario. The report will make general recommendations on remedial measures. Based on this report and on the detailed findings of associated studies, the rehabilitation of derelict mining



Extreme upper left — Mine (middle), pollution control points out the extensive abandoned mine property (left) and Kenward Mah. Extreme lower left — G. University of Toronto pollution brought about by deposits on abandoned mine. Left — Rejected waste deposited in this dump. Below — The pollution. says John Hawley. A polluted tailings has rotted buildings must be pits filled in. Extreme right — Homes of Timmins' operation.



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erial Crown are dead:

ands will be carried out by the province, but only at those properties where ownership is known or the responsible party cannot be identified. Rehabilitation will be undertaken on a priority basis to minimize environmental impact. Mr. Hawley said that rehabilitation will cost millions of dollars.

The problems began when the miners brought the raw ore to the surface.

Once the valuable minerals had been extracted from the ore, rejected materials were deposited in dump areas. Gradually, the tailings, a soupy clay mixture, filled ponds or dumps into which the mixture was pumped. "Dam breakage and groundwater contamination can sometimes occur," said Elise Sheridan, project co-ordinator. "Chemical pollution may spread to surrounding streams and lakes."

John Hawley emphasized the point: "The pollution process does not stop when mining ceases; it may go on for hundreds of years."

At the Kam Kotia mine in Timmins, the land is scarred and pitted. Nothing grows on the 600-acre site. It can't. The water is contaminated and everything it

comes in contact with is stained with rust.

"Each tailings area is a separate problem. In some areas where the acid content is very high, the soil will have to be neutralized with calcium carbonate or lime before revegetation may begin," said Elise Sheridan. "On a scale of one to 10, Kam Kotia would rate a seven for severity."

Cleanup of the abandoned mine properties, a three-year project, is funded by a grant from the Provincial Lottery Corporation and is directed by the pollution control branch, Ministry of the Environment. Phase one of the project has already begun. During the past summer, University of Toronto students Deena Milgram, John MacDonnell, Wendy Chong and Kenward Mah travelled to mines throughout the province. A report based on their findings is being prepared. This fall, the work is being continued by students from the University of Waterloo.

Writing status reports, managing a budget, keeping personnel records, taking vegetation samples, acting as a liaison between the government and outside agencies and keeping an eye on

four active students briefly describes Elise Sheridan's job.

A biology graduate from the University of Toronto, Elise says she is lucky to find a job in her field of study. She said for each job opening in biology there are at least 150 qualified applicants.

"I wanted to use my degree. As I went through the four years of university, jobs were getting harder to come by," she said.

Working under John Hawley's guidance, she has plenty of opportunity to use her biology training. As well as supervising the students, she is working on a study of the metal uptake of vegetation in mining areas.

Deena, Wendy, John and Ken were excited about their role in the cleanup of the abandoned mines.

"I waited a long time for a job like this," said John MacDonnell, vice-president of the engineering society, University of Toronto.

"I visited mines in the Red Lake, Kenora and Sudbury districts," continued John. "Some of them date back to 1890."

Deena Milgram, editor of "Migdal", a Jewish campus newspaper with a circulation of 8,000, has had three years of biology at the University of Toronto and is

now enrolled in geological engineering. Like John, Ken and Wendy, she is interested in the environmental aspects of geology. "Opportunities for learning are tremendous," she said, "but you have to be willing to travel extensively."

Kenward Mah is a student who enjoys all forms of athletics and is involved in various musical endeavors. He states that the experience from this summer has helped decide upon a possible future goal. Being an avid outdoorsman, Ken hopes to complete his engineering course at the University of Toronto and to pursue a career in environmental studies.

Wendy Chong is a fourth year industrial engineering student at the University of Toronto. She is keen on mathematics, computer programming and all branches of science. She hopes to become an industrial system analyst upon graduation.

Each student is responsible for certain mining camps and must evaluate each camp with respect to its particular environmental hazards. The project allows each student to develop his/her own strategy to attack individual problems and to devise a format for

gaining the information required to compile written reports. This entails initiative in the gathering of information — whether by old claim files, mine prospectors' maps or from some of the older town residents who have lived in the area almost since the beginning of the mining period.

Three or four days of the week, students work in remote areas of Northern Ontario. While up north, they work from government district offices.

The mining project gives the students a chance to apply textbook theories to field situations. They become aware of the important role that the mining industry plays in the province and, at the same time, begin to realize that environmental controls are a necessary part of modern-day industrial planning. With the rapidly rising costs of reclamation, the tailings project is both timely and necessary. A successful conclusion to the project will mean that hundreds or perhaps thousands of acres of sterile waste land will be transformed into an indistinguishable part of the natural countryside.

ing and metallurgy expert, John Hawley, pollution control branch, Ministry of the Environment, inspecting damage caused by tailings deposits on the site of summer students John MacDonnell (right).

Geological engineering students from the University of Toronto, Kenward Mah (left), Elise Sheridan (center), and Wendy Chong (right) inspecting materials from a mine in Timmins where the process doesn't stop when mining ceases.

Over left for two weeks in the chemically treated through abandoned property can be revegetated, the actorn down, mine shafts covered and open

and factories are next door neighbors to the old gold mines.



Spraying pesticides without drift

By Linda C. Kirby

After four years of experiments, Environment Ontario's Experience '77 is helping to move a unique pesticide spraying process out of the laboratories into the orchard.

The process, known as electrostatic deposition, is new in Canada. The primary objective of the experiments is a tighter control of pesticide drift and a better plant coverage.

Initially, the experiment was conducted with one tree at the University of Guelph. Last summer, Wood Lynn Farms in London, Ontario, provided the Experience '77 Project with 200 trees from its 24,000 tree orchard. Wood Lynn Farms is a major commercial fruit farm and supplies London groceries and farm markets with fruit. The project is being carried out by a group of university students, professors and local environmental and food authorities.

Professor G. S. Castle of the University of Western Ontario estimates the procedure saves approximately 30% of the normally required pesticide spray.

To achieve the necessary leaf coverage in orchard spraying, explains Professor Castle, as much as 60 gallons of pesticide-water mixture per acre are atomized and blown towards the trees. Much of the mixture falls to the ground or is carried by the wind, causing pollution problems as well as waste.

The new electrostatic process is similar to that used in the paint industry. The spray unit is filled with the pesticide at a positive electrostatic charge of approximately 60,000 volts and attached to a common orchard sprayer. Tree branches and foliage are relatively good conductors, carry a negative charge, and attract the droplets of pesticide. Leaves are covered on both sides by spraying from one point only. The electrostatic unit was designed by the students and professors, and constructed by David Woytowich, a student and general handyman on the project.

For the farmer, the electrostatic deposition technique could

mean a better crop of fruit. This method eliminates unnecessary spraying, produces better foliage coverage and prevents common diseases such as scab from forming.

To determine the amount of drift of the spray Suzanne Yelle and John Montgomery, summer students hired by the Ministry of Environment, placed a series of 12 foot metal poles 20 feet apart on each side of a row of apple trees. On each pole, special plastic containers with testing paper are placed at three foot intervals. As pesticide does not show up on the testing paper, a special yellow dye, fluorescein, is sprayed on the trees. According to Ms. Yelle, the dye shows up heaviest on the first pole on both sides of the row of apple trees. The weather plays a major factor in drift. On a windy day, the spray is likely to spread a wider distance.

The early part of the growing season is crucial to the harvest. It is then that leaves must be protected from all sorts of insect

and fungus disease, such as the common scab, which first attacks the leaves and then spreads to the blooms and fruit. Trees are sprayed, weather permitting, every two weeks during the season.

For John Gardner, representative of the Ontario Ministry of Agriculture and Food, the experiments are of great interest, since they could pave the way for better standards of produce and also aid farmers in reducing pesticide drift to other crops.

This project is also significant as it is a cooperative effort of farmers, environmentalists and scientists, sharing a common concern for the environment, Mr. Gardner said.

If the grant is renewed, the deposition studies will progress into field crops next year, announced Professor Ian Inoué. This could open the way to the introduction of a new, highly effective, and less environmentally damaging control of agricultural pests.

Waste recycling begins at home

Waste management should start at the source. One of the ways householders can contribute to an overall reduction of the load of waste produced in municipalities is by composting part of it right in their own backyards.

To find out how householders feel about waste management in general and composting in particular, and to make a start on measuring the actual effects of composting on the residential waste stream, Ontario's Waste Management Advisory Board carried out an Experience '77 project.

"Most people have already begun to think about what they are throwing out. Some also are

trying to do something about it," said Doug Wright, a summer student hired to work on the project.

Mr. Wright and his colleague, Barbara Clark, interviewed about 225 householders in North Toronto. Some answers to their questions were surprising. "Many of those interviewed already had compost heaps in their backyards, some just for leaves," said Mr. Wright. "Many householders manage their waste by returning their bottles to the neighbourhood depot and by putting out their newspapers for recycling." About 80% of those interviewed said they would be prepared to separate containers for municipal pick-up, according to the results of the questionnaire.

Of the 125 householders offered composters, 100 accepted them. These participants also received special red garbage bags which they were requested to use for all their regular household waste. These bags and other wastes put out for municipal pick-up were weighed each week by the students both before and after the composting program began, in order that an assessment could be made of the weight reduction resulting from the composting. Figures from other jurisdictions claim that these organic and yard wastes comprise as much as 35%, by weight, of household waste. This represents a significant strain on our landfill sites and a gross neglect of a valuable resource. According to WMAB statistics, the amount of waste generated in the average city home is about 2.2 lbs. per person per day.

Essentially, composting is a natural breakdown of organic wastes. Food scraps, grass cuttings, animal litter and vacuum cleaner dust are all household organic wastes which after decomposition contain valuable soil nutrients that are beneficial to gardens. The mixture may be worked into the soil around

Experience '77



Student Barbara Clark registers the weight of household garbage before composting

vegetables, flowers, potted plants, and shrubs or used as a mulch.

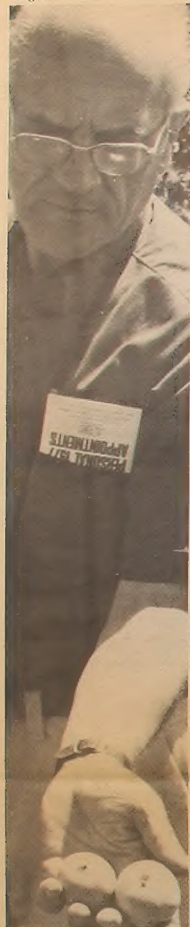
The composters supplied to the 100 households were of two models; the Bardmatic, a cone-shaped composter with a tight lid, and the Rotocrop, shaped as a regular garbage container with vent holes. Both, placed in backyards, are filled with layers of yard cuttings and food wastes. The length of time necessary for decomposition into compost varies with the type of composter used; it can take as little as six to eight weeks.

"Some of the householders decided to participate in the project because they wanted to use the compost in their own gardens. Others joined because they wanted to help the community and the waste problem",

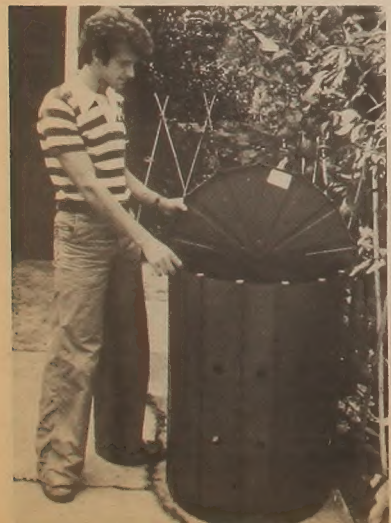
said Mr. Wright. He added that "only five out of the 100 composter owners have needed some encouragement to keep up the work."

The project will continue into next summer. The 100 householders interviewed, but not given composters this summer, form a "control" group so that next year the attitudes and waste management practices of those composting and those not composting can be compared.

Next year's program will also examine the future of the existing project and the feasibility of expanding the program. Presently, however, the results are "very encouraging," says Mr. Wright. "There is a high degree of interest in the field of composting and we hope to continue to promote this interest."



Prof. G. S. Castle shows what difference controlled spraying can make in fruit growth



Doug Wright checks the installation of one of the plastic composters delivered to householders.

Wood chemicals may fuel your car

Experience '77

By Nancy Figueroa

Waste wood chemicals abundant in Northern Ontario may be used in the next 20 years as an alternate source of energy.

Al Bruley, a chemical engineer and associate professor at Lakehead University in Thunder Bay has a \$4,000 grant from the Ministry of the Environment to determine the by-product yields of chemicals and charcoal that can be produced from a variety of waste residues and effluents released from the Thunder Bay pulp mills.

"As fossil fuels and oils are being depleted, we're going to turn to wood as a viable chemical source," says Mr. Bruley.

The extraction method that Mr. Bruley and his two student assistants, Annette Alanen and Ken Martinuzzi, employ were commonly used at the turn of the century when wood was used to make products that are now made from petroleum.

"With the rising cost of petroleum products maybe there will be an upswing in the wood chemical industry," says Mr. Bruley. He hopes to find a use for bark waste from paper mills, as well as slash and poplar from timbered areas. At present, poplar is relatively unmarketable as it consists of weak fibrous materials. The process Bruley uses involves pressuring and heating the waste material to get methanol acetic acids and high compound chemicals.

To evaluate their potential, waste materials and little used

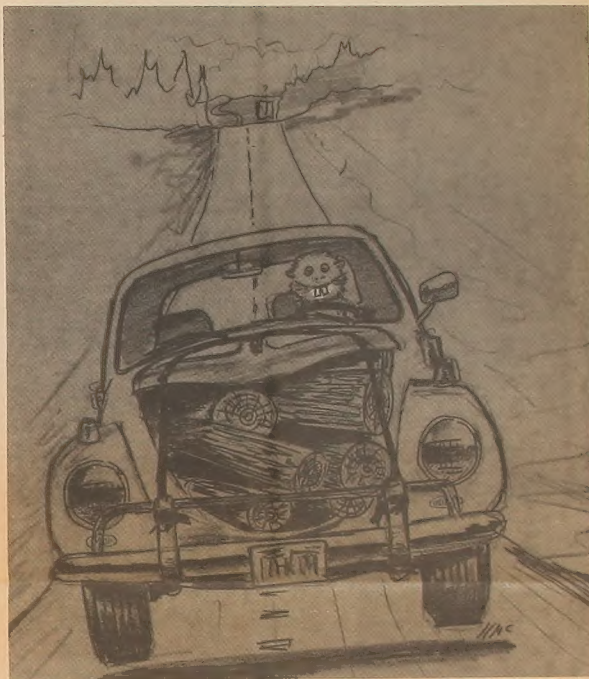
North Western Ontario wood species are gassed in an oxygen-free reactor. The resulting vapors and gasses are then condensed. These condensed products are separated into compounds with different boiling point ranges. The expected products are methanol, acetic acid, wood tar and charcoal. Methanol has been used in Ontario and is being considered by Fisheries and Environment Canada as an alternate fuel for the future.

The gasification of the residue requires six hours in the reactor to ensure complete destructive distillation. Because the reaction does not require close scrutiny, the students use this time to separate the various by-products by steam and fractional distillation.

Other technical data required for a total energy evaluation are moisture, the amount of ash and calorific content before gasification and after gasification.

In the second phase of the project the economic worth of these chemicals will be compared with production costs to determine commercial feasibility.

Mr. Bruley, who has long been interested in the production of chemicals from wood wastes, says that converting these wastes into useful by-products may prove to be a very rewarding alternative to the use of non-renewable energy sources.



Legacy cartoon by Hugh McCall

Students in search of the hiker's dream

By Brenda Turvey

The echo of a distant train whistle rolled across the countryside and startled five youths as they hiked one of 50 miles of abandoned railway lines in the Niagara region.

Brock University students, Carol Tolley, Len Laba, Dorothy Parker, Lynn Lowry and Bob Preibe, were sponsored by the Experience '77 program to determine the possible recreational development of abandoned railways around Niagara Falls, Fort Erie, St. Catharines and Niagara-on-the-Lake.

The students began the study at the end of May by looking at 50 potential sites. By the end of the summer they had found 12 sites with definite possibilities for development as picnic grounds, hike and bike trails, or other recreational uses.

The students then rated each site according to its aesthetic value, and its potential for further development. "There was a lot of field work, in fact it turned out to be more than we

anticipated," admitted Carol Tolley, the student co-ordinator.

The potential of abandoned railway properties has never been considered in the Niagara region before this summer. Many of the lines have not been

in use for over 70 years. A few sites are covered by mature forests. Some are used for hydro line rights-of-way or as informal bike or hiking trails.

Lynn Lowry, an environmental and social specialist, noted

that it would take very little time and effort to develop nature trails or routes for snowmobiling and cross-country skiing. "Some poison ivy and other brush will have to be cleared away, some paths could be leveled," she

said.

A few lines are very close to established recreational sites. "One scenic area in the escarpment," noted Carol Tolley, "could become an extension of the Bruce Trail."

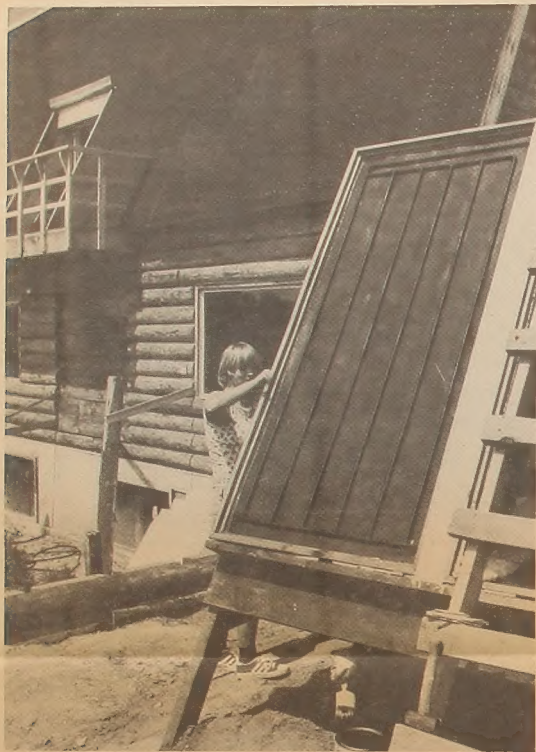
The five urban and environmental students in the study group viewed this project as having both an academic and a practical value. Not only were they able to apply in practice what they had learned in the classroom, but, in the words of Bob Preibe, "we had a lot of fun!"

The students are sending their report to various communities in Regional Niagara for consideration and action and stress that these areas should be viewed as a re-usable land resource rather than abandoned and forgotten strips of land.

Brock University students relax after a hiking through a possible future picnic site at the Lake Ontario entrance to the Welland Canal



To build a house run by the sun . . .



Shawn Turner puts some finishing touches to a solar panel before it is placed on the sloping roof.

By Brenda Turvey

In the countryside just north of Grafton stands a log house named "Shelter Valley Organics". Its huge black roof is perched at a 60° angle against the hills. Curiosity may lead you off the country road onto the property of the house's owner, Mark Finnan.

This summer Mr. Finnan employed four environmental studies students from Trent University, through the Experience '77 program, to work on his "Shelter Valley Organics" project. The students were involved in the installation of a solar heating system that would cut household energy consumption by up to fifty per cent.

Mr. Finnan's house is equipped with an oil and wood stove, but the hot water system is run on a windmill powered generator. The roof is sloped south to absorb a maximum of the sun's rays. Solar energy is collected by 16 solar panels lined with a network of copper pipes. The panels, painted black for better heat absorption, cover the south side of the roof which is sloped for maximum sun ray collection.

Water piped through the panels is warmed by the sun and led to the house's unusually large basement where it is stored in 85 drums. The water stores the heat and passes it on to air which is fan-forced through ducts into the house.

The students, Shawn Turner, Kari Lie, and David Tarasick, installed the solar energy collecting panels as well as temperature-measuring devices and other instrumentation which allow the assessment of the efficiency of the system.

The house has an area of 4,500 feet, and Mr. Finnan admits that

aesthetic preferences sometimes, outweighed practicality when he and environmental architect Greg Allen were drawing up plans. "Therefore," he confesses, "this is not the most ideally designed solar house. The windows facing north and west are alright in the summer but will have to be closed off in the winter. They offer such a tremendous view, though, we couldn't resist putting them in."

The walls consist of eight inch logs — cut hydro poles — and provide good insulation. Mr. Finnan inserted strapping and styrofoam in between them and then mortared over that, inside and out for maximum insulation.

Not only is the house in harmony with its environment. The fifteen acres of land surrounding the home is built will be used in ecological agriculture. "No, we're not going to tear up all that land with tractors and pour chemicals into it," Finnan says looking out onto the land. "We'll start this year with one acre of intensive farming to feed our family of five."

But "solar" is the word Mr. Finnan and the students use most frequently. Various ways and means were developed at the project to conserve energy, and as a result a lifestyle more harmonious with nature has evolved.

"The innumerable things we learned about alternative energy sources will be compiled into a report and sent out to various organizations," noted Shawn Turner. "Our group has made a strong case for the alternatives. Mankind is using up its supply of fossil fuels, but we'll never run out of sun."

... you need good plumbing

Experience '77

While the Trent University group examined the use of solar energy in a whole system, Professor Warnock and a group of students at the Algonquin College in Ottawa were looking at the details of solar panel construction.

The collection of sun-heat is relatively simple — a liquid is led by piping over a panel exposed to the sun. The heated liquid is then collected, and the heat extracted by simple heat exchangers. In reality, however, the builder of such a system faces with a number of decisions: should he use glycol or water as liquid — should the piping be copper, plastic, galvanized iron — should the panels be covered with glass, plastic, aluminum foil, plastic film — or not at all?

The Algonquin College group spent the summer searching for answers to these questions not only from the standpoint of cost and efficiency. They also considered the availability of the various materials, their workability, their adaptation to simple designs, their durability and their need for maintenance, and developed a design of maximum simplicity — a system that could be safely built by the average home owner with the simplest tools.



Prof. C. N. Tite and two of his students install a piping system into a solar panel

Environmental education . . . with Jane Thomas Educational Resources Co-ordinator

Pollution in the Great Lakes

A hundred thousand years ago, the huge Laurentide Ice Sheet began its outward push from northeastern Canada. This massive glacier, five to ten thousand feet thick, began to leave its mark on the surface of the earth. Yielding to the enormous weight, the earth's crust sank beneath its load.

As the Laurentide Ice Sheet melted some 10 to 15 thousand years ago it left behind what is considered the world's largest fresh water reservoir — the Great Lakes.

Today, these lakes play a key role in the economy of this continent supporting more than 35 million people around its shores. In Canada, about one-third of our entire population is centered around the Great Lakes.

From the time they were formed, the lakes began to fill with sediment from inflowing streams. This sediment provided the nourishment for the growth of aquatic plants. These plants in turn trap additional sediment. Many thousands of years from now as this natural cycle continues, and as the earth's crust slowly continues to rebound from the pressure of the ice age, the Great Lakes, like all of the world's lakes, will ultimately disappear.

Unfortunately, man has accelerated this natural action. Since the arrival of the first settlers and the growth of population around the Great Lakes, the input of phosphorus and other nutrients into the lakes has increased with the most pronounced increase occurring over the past few decades. These chemicals are contained primarily in municipal sewage, industrial wastes, and in farm fertilizers. On farms, such chemicals are used to grow abundant crops. In the lakes, they have the similar effect of increasing aquatic growth.

Canada Ontario Agreement

Recognizing the need for immediate action to control the deterioration of the Great Lakes, Ontario signed an agreement with the Government of Canada — The Canada-Ontario Agreement on Lower Great Lakes Water Quality (1971). Under this Agreement, a cost-sharing plan between the federal government and Ontario made finances available to municipalities for the construction of phosphorus removal facilities to two hundred affected sewage treatment plants in southern Ontario.

In 1972, the Canada-United States Agreement on Great Lakes Water Quality was signed

to improve water quality in the Great Lakes and to protect the lakes from further pollution in the future. Under this Agreement, the States bordering the Great Lakes were brought into the plan of action for installing phosphorus removal facilities in sewage treatment plants.

Phosphorus removal equipment has been and still is a major weapon in the fight against environmental deterioration of the Great Lakes. Approximately \$480 million has been spent on municipal sewage treatment facilities in Ontario, with a further \$400 million committed for further projects. This equipment has been installed in all treatment plants in southern Ontario which provide significant discharges to the Great Lakes.

Industry has also played a substantial role in this battle. The Ontario Ministry of the Environment has worked closely with the industrial sector in planning abatement programs for pollution control. To date, in excess of \$250 million have been spent by industry for abatement programs for pollution control and every major industry in the Province is engaged in these programs.

As a result of these and other actions, the deterioration of the Great Lakes caused by excessive nutrient loading has been curbed and the trend reversed.

Additional Concerns

There have been some delays by the United States in meeting the deadlines for phosphorus removal. However, funds authorized for municipal treatment plants have been released and the U.S. Environmental Protection Agency has placed high priority in meeting the water quality objectives set out under the Canada-U.S. Agreement.

However, the battle has only just begun. In the last few years, serious toxic contaminants have surfaced in the Great Lakes. For example, DDT, Mercury, Asbestos, PCBs and Mirex. Effective technological processes have now been developed to detect, measure and assess the impact of these contaminants.

In many cases, the major sources of these contaminants have been isolated and abatement programs developed to stop further contamination. In addition, laws have been developed both at the federal and provincial levels to control the entry of these toxic substances to our environment.

In late 1975, the Government of Canada passed The Environmental Contaminants Act and

on April 1, 1976, it was proclaimed by the Governor General of Canada. The intent of this legislation is to regulate the introduction, use, distribution and processing of materials in quantities greater than 225 kg. per year. Under this Act, an Environmental Contaminants Board of Review will investigate any substances suspected of constituting a danger to human health or the environment.

Environmental Assessment Act

In Ontario, similar action has been taken with the passing of the new Environmental Assessment Act. Under this Act, new developments which might be significant to our environment will have to be assessed at the conceptual stage. In this assessment, all effects on our natural, social, economic, cultural and physical environment will be considered.

As can be seen from these two pieces of legislation, the primary objective is prevention of future contamination. But future strategies also include co-ordinated research and pollution control action between Canada and the U.S. Much of this is co-ordinated through the International Joint Commission.

Founded in 1909, under the Boundary Waters Treaty, the International Joint Commission plays an important role in co-ordinating the efforts of the two countries. Data obtained from research is accumulated by the Commission which in turn assesses the need for remedial action and presents its recommendations to both governments.

This co-ordination of planning and the implementation of recommendations is of utmost importance to the prevention of further pollution of the Great Lakes caused by continuing population growth, resource development and increasing use of water.

For Further Information:
Ontario Ministry of the Environment
Information Services Branch
135 St. Clair Avenue West
Toronto, Ontario M4V 1P5

Other Sources:
International Joint Commission
Great Lakes Regional Office
100 Ouellette Ave.
Windsor, Ontario N9A 6T3

Fisheries and Environment
Canada
Information Services Directorate
Ottawa, Ontario K1A 0H3



Constant surveillance is needed to keep the waters of our Great Lakes from deteriorating and to assess the efficiency of pollution control. A member of the crew of Environment Ontario's vessel Guardian No. 1 takes a water sample on Lake Erie.

QUESTIONS

1. The Great Lakes have been labelled as the keys to Canada. Is this title justified?
2. Describe the natural aging process of a lake. Will the Great Lakes undergo this process?
3. What is meant by the term "eutrophication"?
4. Phosphorus increases the aquatic plant growth within a lake. Where does the phosphorus come from and what is the effect of this excessive plant growth on the lake ecosystem?
5. Of all the Great Lakes, Lake Erie is said to be the most polluted, while Lakes Superior and Huron are the least polluted. What are the reasons for this?
6. The first settlers did not use chemical fertilizers or other artificial compounds to protect their land and crops but they can

be blamed for some of the deterioration of the water quality of the Great Lakes. Can you explain this?

7. Imagine you are an ex-soldier, who has bought 30 acres of land with water frontage on Lake Ontario. The land is completely forested and you must clear part or all of the area for 1) a log cabin, 2) a barn, 3) an outhouse 4) root house (used for storing preserves, vegetables, and fruit), 5) a small dairy building, 6) a fruit and vegetable garden, and 7) at least 30 acres for your crops of oats, corn, pumpkins, potatoes, wheat and rye. Taking into account any potential sources or causes of pollution, sketch your homestead using a scale of 1 inch = 5 acres.

Not your average workshop

For all enthusiastic, environmentally-concerned educators — the Ontario Teachers' Federation's (OTF's) outdoor education workshop is a must.

This year's course which will be held in the Dryden area, in co-operation with the Dryden Board of Education, will run from October 3rd to 7th. It will stress practical teaching approaches to the topic of man and the natural environment and the relationship of the outdoors to basic curriculum activities.

The number of participants is limited so that the atmosphere remains warm, friendly and

conductive to learning and idea sharing.

The workshop fee is \$130.00, including meals and accommodation. Travel arrangements are left to the discretion of the participants.

Last year's course, held in Thunder Bay, provided teachers with information on orienteering, canoeing, curriculum design, studies for ponds, school yards, and paved areas and nature interpretation.

For further information on the Dryden course contact: OTF Curriculum Project, 1260 Bay Street, Toronto, Ontario M5R 2B5.

AWARD WINNER:

Now,garbage recycling comes naturally to the Joneses

Each year the Information Branch of Environment Ontario awards prizes for achievements in Environmental writings in co-operations with the Ontario Weekly Newspapers Association. The 1976 first prize winner was David Nowell of the Brampton Guardian. His award winning story, "Now, garbage recycling comes naturally to the Joneses", is reprinted below with the authors permission.

Second prize went to W. C. Kernaghan, Editor of The Mirror, for his editorial: Recycling family sets an example". The editorial will be reprinted in the next issue of Legacy.

By David Nowell

If you live in the south part of Peel Village, you may know that Mary and Laurie Jones are pretty serious about recycling. One of the posters they distribute about how you can recycle may have been delivered to your home.

You may have chosen to ignore it, as most people seem to, or you may have been one of the people who thought it over and decided to do something to cut back on the amount of garbage that you contribute to Peel's overloaded waste disposal facilities.

The Joneses are getting used to seeing strangers at their door. "Are you the glass people?" They ask.

Glass, tin cans, newspapers and corrugated cardboard are all taken in at their Willis Dr. home and are all sent on to be recycled.

The Joneses operate one of eight depots in the Brampton area and all are associated with Christ Church, where the couples' club decided to do something about recycling.

One family can do a lot to cut down on its garbage and the Joneses were surprised to see just how much they were able to extract from what used to be a lot of waste.

Mrs. Jones recalled that it was during the garbage strike in North York about five years ago when she first began to realize just how substantial her family's garbage output was. She and her husband decided to make a concerted effort to cut back then and the habit stayed with them when they moved to Brampton three

years ago.

"We used to put out four cans of garbage a week," said Jones. Now, it's usually just one.

Separate garbage cans in the kitchen are used to store glass, tin and compostable matter and now "it's just natural" to separate the items. Mrs. Jones said. Egg cartons go to a nursery school and magazines go to a senior citizen's home.

Jones was amazed at his success with a compost heap in his backyard. It gives off no smell and is working so well that, despite putting one pile of matter on it each week, "it never filled up".

Mrs. Jones takes her own bags when she goes shopping, avoids buying instant foods and non-returnable bottles and even keeps an eye on electricity use in her home.

The couple belong to several conservation groups and they're not content to just do their own bit to cut down on waste; they want to get others involved.

"I think it will catch on more," she predicted, "but it's a very slow process. You can't twist people's arms to do it."

In a society where waste is almost a way of life, the Joneses feel odd at times in their efforts to conserve but they feel it's worthwhile to cut down on garbage and save our non-renewable resources.

As if that wasn't enough, the family — the kids get involved as well — is carrying on a quiet campaign in their neighborhood to try to urge others to get into the habit.

Asked why it is worth the effort, Jones would only reply

with a grin: "Because we're fanatics."

Although Peel is now in the throes of a very serious garbage crisis — both of our dumps were to close some time ago and a new one is still a long way off — few other families seem to show much concern in this area.

There was a Brampton chapter of Pollution Probe but it died of apathy and finally

wound up completely in April this year. In a city with a serious garbage problem, that's ironic, to put it mildly.

Right in this city there are depots where glass, tin and newspapers can be left for recycling, as listed in a separate story on this page.

According to Joann Opperman, co-ordinator of the Garbage Coalition, a federation of citizens' groups in-

cluding Pollution Probe, it's not hard to start recycling in your neighborhood.

As few as five people could start up a recycling depot with a little help from the city and some local industries, she said.

But recycling is only the beginning of a solution to our garbage problems, she believes. We could easily eliminate one-third of our garbage with a simple compost heap.



Mary and Laurie Jones like to collect bottles but they prefer to get them after someone else has emptied them so they can be passed along for recycling.
Photo by Al Dunlop

Environmental Assessment explained

More than 25 representatives from Provincial Ministries attended a training seminar on The Environmental Assessment Act held at Queen's Park. The Seminar, which is one of the series of such seminars organized by members of the Environmental Assessment Section, dealt with the role of individual Ministerial reviewers who are required to comment on and critique environmental assessments prepared for Government review.

Vic Rudik, Assistant Director, explained that when a proponent submits an environmental assessment to the Minister of the Environment for review and approval, the Minister prepares a review based not only on the opinion of his staff, but also the opinions of other government ministries concerned with the assessment. Therefore, the Ministry of the Environment coordinates a general government review of a specific project.

Dennis Caplice, Director of the Environmental Approvals Branch, fielded questions from the other representatives and coordinated a discussion between Tom Murphy and Fred Voegel of the Environmental Assessment Board and attendees on the role of the civil servant in the Environmental Assessment Board hearing process.

Other Environmental Assessment Section staff members,

David Birnbaum and David Young, presented an environmental perceptions game and explained the workings of the Act and the Review Process.

In the afternoon, a slide show on The Environmental Assessment Act prepared by the Environmental Assessment Section and the Information Services

Branch was shown.

Participants told MOE staff members hosting the Seminar that the session had been very productive in that it familiarized seminar participants with the Act and provided some rapport between MOE staff and other ministerial representatives.

U of T offers environmental courses

A new engineering program of 90 environmentally related courses designed to add an environmental dimension to engineering studies is offered by the University of Toronto starting September.

The topics range from water and waste treatment to pollution dispersion in air and water. Details are available from Professor J. G. Henry, Haultain Building, University of Toronto, MSC 1A4 — 978-3141.

Water research seeks Canadian members

The Canadian National Committee (CNC) of the International Association on Water Pollution Research (IAWRP) is inviting applications for membership from qualified Canadian societies, institutes, associations and industries. Organizations concerned with environmental research may become members of the Canadian National Committee, which, through its representation on the IAWRP Governing Board, is active in various international activities and assignments.

Historically, Canadians have been prominent in IAWRP affairs and the CNC promotes the exchange of research information by providing a Canadian

Regional Editor for the IAWRP publication "Water Research".

The CNC also encourages and supports Canadian participation in IAWRP regional, specialized and biennial conferences, by assisting Canadian authors and reviewers to take part. The 1980 IAWRP Conference will be held in Toronto and is expected to attract some 2500 scientists from all over the world.

Details can be obtained from the CNC Secretary, Dr. W. A. Bridge, c/o Bridge Values Limited, P.O. Box 3161, South Post Office, Halifax, N.S. B3J 3H5; or Vice Chairman, Dr. P. H. Jones, Institute for Environmental Studies, University of Toronto, Toronto, Ontario M5S 1A4, (978-3486).



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of the
Environment
Ontario

Hon. George A. Kerr
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Deputy Minister

Published bi-monthly by the Ministry of the Environment, Information Services Branch, 135 St. Clair Avenue West, Toronto, Ontario, M4V 1P5 for those interested in the many facets of environmental enhancement. Reproduction of articles authorized without further permission.

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